THE WESTERN AUSTRALIAN
NATURALIST

Vol. 2 July 7, 1950 No. 5

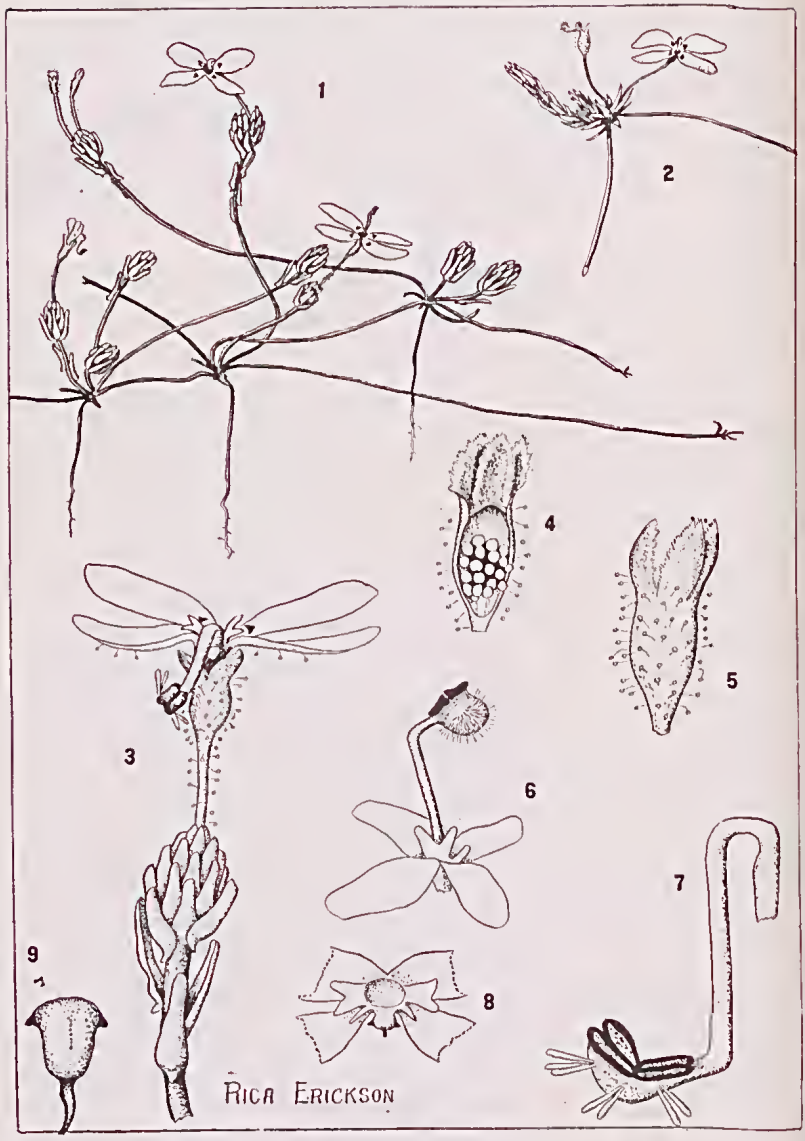
NOTES ON A COMMON TRIGGER PLANT WITH UNCOMMON HABITS

By Mrs. RICA ERICKSON, "Fairlea," Bolgart.

The Matted Trigger Plant *(Stylidium repens* R. Br.*)* is an inconspicuous, lowly plant, despite the large areas of ground it sometimes covers. It is found on a variety of soils throughout the South-west but usually is noticed only during its flowering seasons. The plants with their loose tangles of slender, wiry stems and small knots of leaves resemble nets of horsehair.

Through the summer they lie dormant and apparently lifeless, but after the first rains in autumn each knot of leaves opens; buds of new, leafy stems begin to shoot from them; and tender, red roots grope downwards from them, searching for the soil beneath. Within a few days the terminal rosettes of leaves bear flowers. (See Fig. 2 of the plate). During the winter months, after the autumn blooming, the new stems lengthen swiftly and their leaves become widely spaced. In the meantime the aerial roots have found the soil, where they anchor and feed the new extensions to the old plants. The first heat of the coming summer warns the plants of the necessity to prepare for a long rainless period. They shed their stem leaves. The long stems are again bare except for the tightly closed terminal rosettes of leaves which preserve the buds from which life is renewed after the summer drought.

While thus preparing for dormancy, the Matted Trigger makes another burst of bloom (see Fig. 1 of plate). There must be sufficient moisture left in the soil together with the warm days to repeat the conditions which urged the autumn flowering. So far as I am aware this is the only Trigger plant to flower twice a year. Should there be late rains or unusual thunderstorms, this early summer blooming is much improved but it cannot compare with the autumn show when the masses of small pink flowers are spread like carpets. Since each little bloom faces the sun, an observer sees them best by facing south. By facing north with the flowers, only the thin edges of the petals are seen. A prominent crimson patch at the base of each petal marks the "eye" of the flower. The appendages at the centre of the flower (see Figs. 6, 8) are extremely variable in number, size and shape, especially in the summer blooms, in which there may be 2-8. Autumn blooms generally have four appendages but these vary in the same plants from season to season. The



Matted Trigger Plant *(Stylidium repens* R.Br.)

Fig. 1—A plant showing summer flowers and stems shedding their leaves. 2—A terminal rosette with autumn blooms, new stem shoots and aerial root. 3—An enlarged view of a summer bloom and terminal rosette. 4—A longitudinal section of an ovary. 5—Side view of ovary. 6—Side view of corolla and column showing the brush-like stigma and empty anthers. 7—Side view of poised column showing anthers before the development of the stigma. 8—The throat of the corolla showing appendages and labellum. 9—Front view of labellum.

colour of the summer flowers fades swiftly. The differences between the flowers and the stems of the Matted Trigger during two seasons led W. V. Fitzgerald to describe the summer flowers as a new species *(Stylidium cygneum)*.

The most interesting feature of any Trigger Plant is its column. That of the Matted Trigger functions in the usual manner. When poised it is bent back between the petals to rest against the labellum. (This is a minute section of the corolla which is a modified fifth petal). It has the power to spring over when released by a certain stimulus, such as an insect probing for nectar. It bears the stamens and stigma together at its apex, the stamens developing first and then the brush-like stigma growing up between them, pushing the empty stamens aside.

This development of the stamens and stigma at different times guards against self-pollination. Most Trigger plants attract only one, sometimes two, species of insect as their fertilising agent. They offer certain landing places on the paired petals. The consequent uniformity of size and action of the insect ensures economical and positive transference of pollen. I have come to the conclusion, after long periods of watching many species of Trigger plants, that very few insects visit these flowers, but those which do are impelled to visit flower after flower of the same species. When the insect probes the corolla tube for nectar the trigger flies over and, if it is a young flower, pollen is dusted on the insect. When it visits an older flower a receptive stigma occupies the position formerly held by the stamens and the springing trigger gathers up pollen instead. To facilitate this exchange, the insect is usually hairy so that the pollen is not lost in flight, and the stigma is brush-like the better to pick it up.

The insect is somewhat startled at first by the trigger's action and generally darts away but after several similar experiences it becomes accustomed to the tiny blows and will continue to sup while held in the clasp of the trigger. The columns are adapted to suit the particular fertilising agent and the paired petals ensure the correct alignment of their bodies, without which the flower's trigger devices are worthless.

After this discussion of the habits of Trigger plants in general, it is apparent that the Matted Trigger is unusual for the number and variety of its insect visitors. It is freely visited by all kinds and sizes. There are large grey flies, green flies, humpbacked flies, bush flies, blowflies, common flies, native bees and honey bees*. It is the only Trigger plant I have seen visited by honey bees but the wealth of autumn blossom in that lean, floral season is no mean attraction.

*Mr. Tarlton Rayment, to whom specimens of some of these insects were sent, identified them as flies of the families Empididae, Bombyliidae, Tachinidae and Stratiomyiidae, and the bees, *Paracolletes albopilosis*, Raym, and *Apis mellifera* x *A. ligustica* (worker), R.E.

The columns of Matted Triggers are very sensitive earlier in the morning and later in the evening than in other species. They also respond on wet, dull days. They can re-poise within four minutes but are not fully sensitive again until the lapse of about an hour and a half. Sometimes they will respond within twenty minutes with a feeble movement that rarely raises the trigger past the top of the arc (see Fig. 6 of plate). These longer periods of sensitivity, the great variety of numerous visitors and the vast numbers of flowers would *appear* to ensure the successful production of large quantities of seed. This is not so. Very few seed capsules mature. This may be the result of the indiscriminating stances of the smaller insects. It is certain that the bigger insects are useless for the flowers' purpose—the flying columns are too short to strike these visitors as they sip hovering in front of the flowers. This wastes sensitivity. The small insects rarely stand correctly aligned. They have merely to crawl from bloom to bloom so closely are they set. The triggers hit them in many places and the uncertain scattering of pollen is wasteful. So the plants have need of their surer method of propagation by creeping stems when fertilisation of ovules is chancey.

Each plant grows new stems which root and in their turn grow new stems which can function as independent plants. The process continues until a colony of interwoven plants develops in which it is impossible to tell where one begins or ends. When such a colony covers acres of ground its age is not to be guessed at.

A NEW SHARK FROM NORTH-WESTERN AUSTRALIA

By GILBERT P. WHITLEY, The Australian Museum, Sydney.

A Whaler shark, closely allied to a Javanese species, was recently obtained in north-western Australia and the Northern Territory during cruises of the fisheries research vessel *Stanley Fowler* under charter to the C.S.I.R.O. It enters the genus *Galeolamna* (as restricted in *Austr. Zool.*, vol. xi, 1945, p.1) but differs from the genotype *(G. greyi* Owen) in having a more pointed snout and more deeply notched teeth. The holotype female, 154 cm. long, was gravid and probably primiparous, and was the largest of numerous living specimens examined by the author. Diagnostic characters are the 25 to 31 teeth in either jaw (usually 14 or 15 each side of symphysial tooth), small second dorsal fin, gothic-arched snout, no interdorsal ridge, and it usually has dark tips to some fins and a dark diffuse lateral band.

Genus *GALEOLAMNA* Owen 1853.

Galeolamna pleurotaenia tilstoni, subsp. nov.

(Figs. 1-2)

Carcharias (Prionodon) pleurotaenia Bleeker, *Verh. Bat. Gen.*, xxiv., 1852, Plagiost., pp. 7, 9, 28 and 40, pl. ii., fig. 6. Batavia, East Indies.